

Amendments to the Drawings:

The attached three (3) replacement sheets of drawings include changes to FIGS. 1-4. FIGS. 1 and 3 have been amended to add the legend --Prior Art--. FIGS. 1-4 have been amended to change the designations for α_{np} and α_{omp} to α_{dir} and α_{ref} , respectively. It is respectfully requested that the attached three (3) replacement sheets of drawings depicting FIGS. 1, 2-3, and 4 replace the sheets depicting FIGS. 1, 2-3, and 4 currently on file.

Attachment: Three (3) replacement sheets of drawings (FIGS. 1-4)

REMARKS/ARGUMENTS

The sole claim is claim 1 which has been amended to better define the invention. The drawings have also been amended to label FIGS. 1 and 3 with the legend -- Prior Art -- and to change the designations for α_{np} and α_{omp} to α_{dir} and α_{ref} , respectively, in FIGS. 1-4. The Abstract has also been amended. Reconsideration is expressly requested.

The Abstract of the Disclosure was objected to as being more than 150 words in length and as using the phrase "evolutes of **said** surface" in lines 14-15. In response, Applicants have amended the Abstract, *inter alia*, to correct these informalities which it is respectfully submitted overcomes the Examiner's objection to the Abstract.

The drawings were objected to under 37 C.F.R. 1.83(a) as failing to show the "evolutes of which are closed curves which limit the convex transverse sections of the lamp and conventional absorber," "the convex transverse section of the lamp," and the

"transverse section of the conventional absorber" as recited in the claim. Claim 1 was rejected under 35 U.S.C. 112, second paragraph, as being indefinite for similar reasons.

Specifically, the Examiner considered the term "the evolutes of which are closed curves which limit the convex transverse sections of the lamp and conventional absorber" to be a relative term which renders the claim indefinite. The Examiner also considered the terms "evolutes of which" and "convex transverse section" not to be defined by the claim and that the specification does not provide a standard for ascertaining the requisite degree so that one of ordinary skill in the art could be reasonably apprised of the scope of the invention. In addition, the term "generated by moving a straight line parallel to the solarium body axis lengthwise" was said not to be understood because a straight line is not clearly set out as parallel to the solarium body (which is a cylinder) and moving it lengthwise would mean creating a straight line that does not create the form shown in FIG. 6.

The drawings were also objected to under 37 C.F.R. 1.84(p)(5) as including the following reference character(s) not mentioned in the description: G, H in FIG. 3, and α_{np} and α_{omp} in FIGS. 1-4. In addition, the Examiner required FIGS. 1 and 3 to be designated by a legend such as -- Prior Art --.

In response, Applicants have amended FIGS. 1 and 3 to add the legend -- Prior Art -- as requested by the Examiner and have amended FIGS. 1-4 to change the designations for α_{np} and α_{omp} to α_{dir} (that is, the angle of the direct beam from the lamp) and α_{ref} (that is, the angle of the reflected beam from the lamp), respectively. With respect to the Examiner's objection concerning the reference characters G, H in FIG. 3, it is respectfully submitted that these reference characters are already mentioned in the description at page 5 and therefore, no further amendment is necessary.

With respect to the Examiner's rejection under 35 U.S.C. 112, second paragraph, and objection under 37 C.F.R. 1.83(a) regarding the "evolutes of which are closed curves which limit

the convex transverse sections of the lamp and conventional absorber," "the convex transverse section of the lamp," and the "transverse section of the conventional absorber," Applicants have amended claim 1 to better define the invention and respectfully traverses the Examiner's rejections for the following reasons.

The subject patent application describes a device containing a reflector of original profile which ensures reflection onto the user (referred to as the "conventional absorber") of the light of the ultraviolet lamps to full extent.

For an understanding of the term "evolutes of which are closed curves which limit the convex transverse sections of the lamp and conventional absorber," the following explanation is provided using the drawings as originally filed in the application. In FIG. 6 is shown a "unitary closed surface of the reflector 3, which contains 2 n smoothly joined alternating surfaces of the first kind (BГД) and surfaces of the second kind (АБВ) .

Each surface of the first kind (BГД) is placed immediately behind each lamp 1.

Each surface of the second kind (АБВ) is placed between each pair of neighboring lamps 1.

Thus, FIG. 6 shows the surfaces of the first kind and the surfaces of the second kind as recited in Applicants' claim 1 as amended.

Each sector of a surface of the first kind (BГД) in transverse section is part of two branches of the evolvent of a curve (including the point of return or "sunset" (G)) of the transverse section of the lamp 1, that is, the circle of the diameter of the lamp 1. The "point of return (G)" or "point of sunset (G)" of this evolvent is situated on a continuation of the segment of the line joining the axis of the body 4 to the axis of

this lamp, behind which is placed the surface of the first kind of the reflector 3.

The surface of the first kind (BГД) of the reflector 3 is formed by moving the line parallel to the longitudinal axis of the body 4 along the evolvent.

Each sector of the surface of the second kind (AБB) in transverse section is part of two branches of an involute of the transverse section of the conditional (virtual) absorber 2.

Thus, it is respectfully submitted that FIG. 6 shows the result of moving a straight line parallel to the axis of the solarium along the evolvent of a curve bounding the convex transverse section of the lamp = sectors of the first kind; and the result of moving a straight line parallel to the axis of the solarium along the evolvent of a curve bounding the transverse section of the absorber = sectors of the second kind.

In claim 1 as amended, Applicants provide the characteristics of the sectors of the reflector of the first kind, which "are part of the surface formed by moving a straight line parallel to the axis of the solarium along the evolvent of a curve bounding the convex transverse section of the lamp" and the characteristics of the sectors of the reflector of the second kind, which "are part of a surface formed by moving a straight line parallel to the axis of the solarium along the evolvent of a curve bounding the transverse section of the absorber".

With respect to the term "convex transverse section of the lamp", this term simply refers to that cross-section of the lamp that has convex contour.

With respect to the expression, "generate by moving a straight line parallel to the the solarium body axis lengthwise" claim 1 has been amended to make clear that this expression refers to generating by moving a straight line which is parallel to the axis of the solarium body along involutes using the involutes as guides.

It is respectfully submitted that the foregoing amendments and explanations overcome the Examiner's objections to the drawings and rejection under 35 U.S.C. 112, second paragraph, and Applicants respectfully request that the objections and rejection on these bases be withdrawn.

Claim 1 was rejected under 35 U.S.C. 103(a) as being unpatentable over *Levin U.S. Patent No. 4,103,175* in view of *Maruyama JP 05-088086* and *Basso U.S. Patent No. 4,674,507*. Essentially the Examiner's position was that *Levin* discloses the device recited in the claims, except for features which were said to be taught by *Maruyama* and *Basso*.

This rejection is respectfully traversed.

As set forth in claim 1 as amended, Applicants' invention provides a device for UV-irradiating of human's cutaneous covering, i.e., a vertical solarium including a cylinder-shaped body closed along the perimeter thereof provided with a door and accommodating 'n' fluorescent lamps for taking sunless tan. The

lamps are spaced apart at an equal angular pitch round an axis which is at the same time the solarium's axis, and are arranged parallel thereto and equidistantly therewith. The device further includes a cylinder-shaped mirror reflector which is coaxial with the solarium body and is interposed between the lamps and the body.

The reflector includes $2n$ alternating areas (integrated into a cylinder) of first-type and second-type involute cylinder-shaped surfaces the evolutes of which are closed curves which limit the cross-section of the lamp having convex contour in conventional absorber, respectively. Each area of the first-type surface is disposed immediately behind each lamp and appears as a portion of an involute cylinder-shaped surface generated by moving a straight line, which is parallel to the axis of solarium body, along involutes used as guides of a closed curve which limits the convex transverse section of the lamp. Each area of the second-type surface is disposed between the lamps and is a portion of an involute cylinder-shaped surface generated by moving a straight line, which is parallel to the axis of solarium

body, along involutes of a closed curve which limits the transverse section of the conventional absorber.

None of the cited references discloses or suggests the device for irradiation, containing a reflector of original cross section profile as recited in Applicants' claim 1 as amended. With Applicants' device as recited in claim 1 as amended, a **reflector** is used which is an enclosed system of $2n$ smoothly joined alternating mirrors of first and second type.

The goal of Applicants' device is to create such a structure (shape) of the reflector 3 and such an orientation as affords maximum effectiveness of use of the radiation of each lamp. To accomplish this goal, each surface of the first kind of the reflector 3 prevents the reflection of beams back toward the lamp, behind which the surface of the reflector 3 is situated. Each surface of the second kind of the reflector 3 provides reflection onto the conventional absorber 2 of all beams impinging on this surface of the reflector 3 from lamps installed in the vertical of the solarium.

With Applicants' device as recited in claim 1 as amended, there is provided reflection of the radiation of the lamp to a full extent onto the conditional absorber (onto the user), that is, it is possible to reduce the required number of lamps by a factor of 3.5 to achieve an equivalent effect.

The primary reference to *Levin* relates to a system in which a reflector between the lamps and the side walls of the body is absent. *Levin* describes a device which contains a reflector, installed in the base of the body and on the ceiling of the body for partial compensation of the losses of radiation near the end faces of the vertically installed lamps. There is no disclosure or suggestion of Applicants' device as recited in claim 1 as amended.

The defects and deficiencies of the primary reference to *Levin* are nowhere remedied by the secondary references to *Basso* and *Maruyama*. In *Basso*, the inner surface of the cylindrical cabin is lined with a polished aluminum reflector. Although *Basso* has a cylindrical body, luminescent lamps arranged parallel

to the axis of the solarium and a mirror ("polished") reflector between the lamps and the body, it is respectfully submitted that *Basso's* arrangement can in no way increase the illuminance of the object (the tanning user) because *Basso* uses a reflector whose cross section profile corresponds to the cross section profile of the body, that is, any beam not originally impinging on the object inside the apparatus will never reach it, no matter how many reflections there are (given the known theorem that the angle of incidence is always equal to the angle of reflection). As a result, the *Basso* tanning booth on the whole has an effectiveness less than Applicants' device by several fold (namely, a factor of around 3.0 for the case of an ideal mirror).

The remaining reference to *Maruyama* has been considered but is believed to be no more pertinent. Although *Maruyama* discloses a reflector arrangement, there is no disclosure or suggestion of a device having the structure set forth in claim 1 as amended or the benefits that are achieved by that structure. In addition, it is respectfully submitted that one skilled in the art would

have no reason to make the combination of *Levin, Basso* and *Maruyama* as suggested by the Examiner.

Accordingly, it is respectfully submitted that claim 1 as amended is patentable over the cited references.

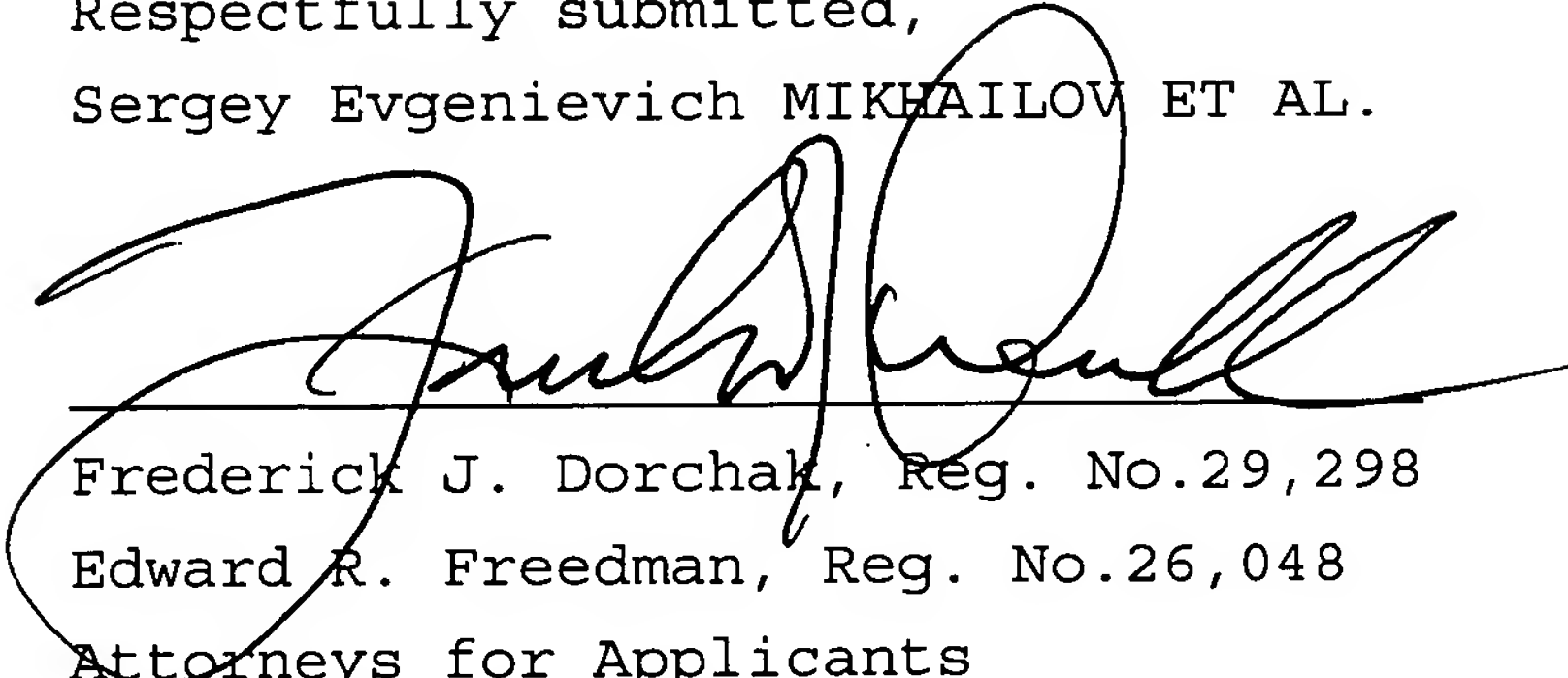
For further explanation, Applicants submit comments which further explain Applicants' invention as recited in the claim, which it is respectfully submitted proposes a completely original solution for the profile of the reflector and makes it possible to achieve a stunning result.

In summary, claim 1 has been amended along with the Abstract and FIGS. 1-4. In view of the foregoing, it is respectfully requested that the claims be allowed and that this application be passed to issue.

Applicants also submit herewith a Supplemental Information
Disclosure Statement.

Respectfully submitted,
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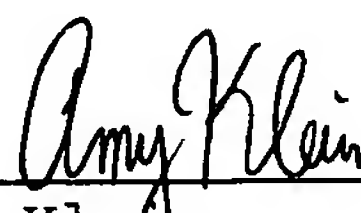


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Enclosures: Appendix with three (3) replacement sheets of
drawings, Comments from Applicants, Supplemental Information
Disclosure Statement with Form PTO-1449 and one (1) reference,
Check in the amount of \$180.00

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Amy Klein

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APPENDIX